James Hardie Building Products
26300 La Alameda, Suite 250
Mission Viejo, CA 92691

MATERIAL SAFETY DATA SHEET

James Hardie® Building Products
26300 La Alameda, Suite 250
Mission Viejo, CA 92691
Telephone (General Information and Emergency): 1-800-942-7343 (1-800-HARDIE)

Section 1. Chemical Products and Company Identification

Product Name/Trade Names:
Hardibacker 500®, Hardibacker®, Hardisoffit®, Hardipanel®, Hardiplank®, Harditex®, Sentry®, Harditrim®, Hardishingle™

Other Names: Fiber-cement, Fiber-reinforced cement

Use: The above products are used as internal/external wall cladding and tile underlayment.

Manufacturer: James Hardie® Building Products, 26300 La Alameda, Suite 250, Mission Viejo, CA 92691

Effective Date: December 10, 2003. Check to verify the latest version or translation availability.

NOTE: As of the date of the preparation of this document, the information contained herein is believed to be accurate.

Substance Name	**CAS NUMBER**	**UN Number**	**EINECS Number**	**Proportion** (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-878-4	35-45%
Calcium Silicate (Hydrate)	65997-15-1	Not a hazardous material for shipping purposes	266-043-4	50-60%
Cellulose	9004-34-6	Not a hazardous material for shipping purposes	232-674-9	<10%
Other non hazardous ingredients (fillers)				<10%

Coated products are coated with water-based acrylic paint or acrylic sealer.

Section 2. Hazardous Ingredients/Identity Information

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Section 3. Hazards Identification

Emergency Overview: Not explosive, not a fire hazard.

Primary Routes of Entry and Potential Health Effects:

Inhalation:
Acute effects. Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust during sanding or sawing operations.

Chronic Effects. Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis and lung cancer in persons also exposed to crystalline silica.

Acute silicosis, a sub-chronic disease associated with acute, massive silica exposure, is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to, shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

Ingestion:
Unlikely under normal conditions of use, but swallowing the dust from this product may result in irritation or damage to the mouth and gastrointestinal tract due to alkalinity of dust.

Eye:
Dust may irritate the eyes from mechanical abrasion causing watering and redness.

Skin:
Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.

Medical conditions generally aggravated by exposure: Pulmonary function may be reduced by inhalation of respirable crystalline silica and/or cellulose. If lung scarring occurs, such scarring could aggravate other lung conditions such as asthma, emphysema, pneumonia or restrictive lung diseases. Lung scarring from crystalline silica may also increase risks to pulmonary tuberculosis.

Smoking:
Cigarette smoking increases the risk of occupational respiratory diseases.

Carcinogenicity:

California Proposition 65 Warning:
Respirable crystalline silica is known to the State of California to cause cancer.

International Agency for the Research on Cancer (IARC):
Crystalline silica inhaled in the forms of quartz or cristobalite from occupational sources is carcinogenic to humans.

The National Toxicology Program (NTP):
NTP has concluded that respirable crystalline silica is a known human carcinogen.

LD50:
Silicon Dioxide: Rat oral >22,500 mg/kg; Mouse oral >10,500 mg/kg.

NFPA Ratings (Scale 0-4): health=2, flammability=0, reactivity=0, personal protection=E.

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Section 4. First Aid Measures

Signs and symptoms of over exposure: Breathlessness, wheezing, cough, sputum production.

First Aid:

Swallowed:
If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay the person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.

Eye Contact:
Remove contact lens. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or if visual changes occur.

Skin Contact:
Wash with mild soap and water. Contact physician if irritation persists or later develops.

Inhaled:
Remove to fresh air. If shortness of breath or wheezing develop, seek medical attention.

ADVICE TO DOCTOR: Treat symptomatically.

Section 5. Fire Fighting Measures

James Hardie® fiber-cement products are neither flammable nor explosive.

Fire and Explosion Hazard:
1. Flash Point: Not applicable.
2. Auto-ignition: Not applicable.
3. Non-flammable and non-explosive.

Extinguishing Media: This material is not combustible. Appropriate extinguishing media for surrounding fire should be used.

Fire Fighting: Fire fighting personnel should wear normal protective equipment and positive self-contained breathing apparatus.

Section 6. Accidental Release Measures

No special precautions are necessary to pick up product that has been dropped. The following applies to spills or releases of dust generated during cutting or sanding of the material.

Precautions: Good housekeeping practices are necessary for cleaning up areas where spills or leaks have occurred. Take measures to either eliminate or minimize the creation of dust. Respirable dust and silica levels should be monitored regularly.

Wherever possible, practices likely to generate dust should be controlled with engineering controls such as local exhaust ventilation, dust suppression with water and containment, enclosure or covers.

Use respiratory protection as described in Section 8.

Cleanup Methods: A fine water spray should be used to suppress dust when sweeping (dry sweeping should not be attempted). Vacuuming, preferably with an industrial vacuum cleaner outfitted with a high-efficiency particulate (HEPA) filter, is preferred to sweeping. Waste may be disposed of by landfill in compliance with federal, state and local requirements.

In the event of an accidental release, observe all protection measures set out in this MSDS. Avoid using materials and products that are incompatible with the product. (refer to Section 10)

Section 7. Handling and Storage

Note: The fiber cement boards in their intact state do not present a health hazard. The controls below apply to dust generated from the boards by cutting, drilling, routing, sawing, crushing, or otherwise abrading, and cleaning or moving sawdust.

James Hardie®'s recommendation: Keep exposure to dust as low as reasonably possible. Respirable crystalline silica levels should not exceed those specified by OSHA and MSHA and identified in this MSDS. Exposure to respirable (fine) silica dust depends on a variety of factors, including activity rate (e.g. cutting rate), method of handling (e.g. electric shears), environmental conditions (e.g. weather conditions, workstation orientation) and control measures used.

Wherever possible, practices likely to generate dust should be carried out in well ventilated areas (e.g. outside).

At a minimum, the following methods and/or tools are required to minimize dust levels:

"Score and Snap" method with score and snap knife.
Manual, electric or pneumatic shears.
Circular saw blades specifically designed for cutting fiber cement (e.g. Hitachi Hardiblade).
Power tools outfitted with dust collection/vacuum systems with high-efficiency particulate air (HEPA) filter, or wet-cutting systems.
Vacuuming with HEPA filter.

DO NOT saw cut indoors.

DO NOT dry-saw with any type of masonry blade such as a segmented or continuous rim diamond blade, or with any other type of grinding or abrasive-type wheel.

DO NOT dry sweep.

DO NOT work in windy/dusty condition, when wind/dust is blowing toward other persons.

Keep away from reactive products. Do not store near food, beverages or smoking materials. Avoid spilling and creating dust. Maintain appropriate dust controls during handling. Use appropriate respiratory protection during handling as described in Section 8.

Section 8. Exposure Controls and Personal Protection

OSHA Permissible Exposure Standards (PEL): Exposures shall not exceed an 8-hour time weighted average limit as stated in 29 CFR § 1910.1000 Table Z-3 for mineral dusts, expressed in million particles per cubic feet (Mppcf) and/or milligrams per cubic meter (mg/m^3). The American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLV) is a recommended exposure limit based on an 8-hour time-weighted average.

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		TLV mg/m³	PEL Mppcf	PEL mg/m³
Crystalline Silica	(Quartz) (Respirable)	0.05 mg/m³	250 %SiO_2+5	10mg/m³ %SiO_2+2
Quartz	(Total Dust)	-----	-----	30mg/m³ %SiO_2+2
Calcium Silicate	(Total Dust) (Respirable)			15mg/m³ 5 mg/m³
Nuisance Dust	(Not Otherwise Specified) (Total Dust) (Respirable)	 50 15		 15mg/m³ 5 mg/m³
Cellulose	(Total) (Respirable)			15mg/m³ 5 mg/m³

Other Limits Recommended: The National Institute of Occupational Safety and Health also has a Recommended Exposure Limit (REL) of 0.05 mg/m³ for respirable crystalline silica, based on a 10-hour time-weighted average.

Products may be coated. If coated, the coating will be water based acrylic paint or acrylic sealer.

Personal Protection: When handling products that may generate silica dust: (1) Work outdoors where feasible, otherwise use mechanical ventilation, (2) Wear a dust mask or, if dust may exceed PEL, use NIOSH, OSHA or MSHA approved respirator, and (3) Warn others in area.

Use and maintain respirators that conform to ANSI Standard (Z88.2) particulate respirators. Select respirators based on the level of exposure to crystalline silica as measured by dust sampling. Use respirators that offer protection to the highest concentrations of crystalline silica if the actual concentrations are unknown. Put in place a respiratory protection and monitoring program that complies with MSHA or OSHA (e.g. 29 CFR 1910.134) standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing and other requirements. Comply with all other federal and state laws.

Section 9. Physical and Chemical Properties

Appearance and Odor: Solid gray boards with varying dimensions according to product

Vapor Pressure: Not Relevant
Flash Point: Not Relevant
Specific Gravity: Not Relevant
Autoignition Temp: Not Relevant
Flammability Limits: Not Relevant
Volatility: Not Relevant
Boiling Point: Not Relevant
Solubility in Water: Not Relevant
Melting Points: Not Relevant
Evaporation Rate: Not Applicable
NFPA Ratings (SCALE 0-4): health=2, flammability=0, reactivity=0, personal protection=E

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Section 10. Stability and Reactivity

Stability: Crystalline silica is stable under ordinary conditions.

Conditions to Avoid: Excessive dust generation during storage and handling.

Materials to Avoid:

Incompatibility: Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride or oxygen difluoride may cause fires and/or explosions.

Section 11. Toxicological Information

This product is not toxic in its intact form. The following applies to dust that may be generated during cutting and sanding:

Chronic Effects:

Inhaled:

Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

The following relates to health effects of cellulose: Based on limited animal research, it is possible that repeated chronic inhalation exposure to cellulose fiber dust over time may lead to inflammation and scarring of the lung in humans. Precautions taken for crystalline silica dust will protect against cellulose.

Section 12. Ecological Information

There is a very limited amount of ecological data available on the effects of releases that may occur from this product being released into the environment. Clean up of the spilled product would not be expected to leave any hazardous material that could cause a significant adverse impact. There is a limited amount of ecological data available on crystalline silica, primarily because it is a naturally occurring mineral. An adequate representation of these data is beyond the scope of this document.

Section 13. Disposal Consideration

Dispose of material as inert, non-metallic mineral in conformance with local, state and federal regulations. Crystalline silica is not a RCRA hazardous waste.

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Section 14. Transport Information

There are no special requirements for storage and transport.

UN No: None Allocated.
Dangerous Goods Class: None Allocated.
Hazchem Code: None Allocated.
Poisons Schedule: None Allocated.
Packing Group: Not Applicable.
Label: Not a DOT hazardous material. Local regulations may apply.

Section 15. Regulatory Information

DOT Hazard Classification: None.

Placard requirement: Not a DOT hazardous material. Local placarding regulations may apply.

California Proposition 65: Warning: Airborne particles of respirable size of crystalline silica are known to the State of California to cause cancer.

CERCLA Hazardous Substance (40 CFR Part 302):

Listed Substance: No.
Unlisted Substance: No.
Reportable Quantity (RQ): None.
Characteristic(s): Not applicable.
RCRA Waste Number: Not applicable.

SARA, Title III, Sections 302/303 (40 CFR Part 355 – Emergency Planning and Notification):

Extremely Hazardous Substance: No.

SARA, Title III, Sections 311/312 (40 CFR Part 370 – Hazardous Chemical Reporting: Community Right-To-Know):

Acute: Yes. Chronic: Yes. Fire: No. Pressure: No. Reactivity: No.

SARA, Title III, Sections 313 (40 CFR Part 372 – Toxic chemical Release Reporting: Community Right-To-Know):

Not a RCRA Hazardous Waste.

TSCA Inventory List: Yes.

TSCA 8(d): No.

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WARNING

WARNING
AVOID BREATHING SILICA DUST

Product contains silica. Inhalation of respirable silica dust can cause silicosis a potentially disabling lung disease, and is known to the State of California to cause lung cancer. When drilling, cutting, or abrading product during installation or handling, (1) Work outdoors where feasible, otherwise use mechanical ventilation, (2) Wear a dust mask or, if dust may exceed PEL, use NIOSH approved respirator, (3) Warn others in area. For further information, refer to material safety data sheet.

This form has been prepared to meet current Federal OSHA hazard communication regulations and is offered without any warranty or guarantee of any type. James Hardie® Building Products cannot control the use of its products, and therefore specifically disclaims liability and responsibility arising from the use, misuse and alteration of its products.

The information contained on this MSDS was produced without independent scientific or medical studies analyzing the effects of silica upon human health. The information contained herein is based upon scientific and other data James Hardie® Building Products believes is valid and reliable and provides the basis for this MSDS. The information contained herein relates only to specific materials listed in the document. It does not address the effects of silica when used in combination with other materials or substances, or when used in other processes. Because conditions of use are beyond James Hardie® Building Products control, the company makes no representations, guarantees or warranties, either express or implied warranties as to the fitness of the product for use, and assumes no liability related to the information contained above.

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